UNITED STATES PATENT AND TRADEMARK OFFICE

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EXAMINER
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

PTOL-90A (Rev. 04/07)

	Application No.	Applicant(s)
Office Action Summary	10/584,078	MANZALINI ET AL.
	Examiner	Art Unit
	ALBERT T. CHOU	2416

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>22 June 2006</u>.
2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.
3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>23-44</u> is/are pending in the application.
    4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5)☐ Claim(s) _____ is/are allowed.
6)☒ Claim(s) <u>23-44</u> is/are rejected.
7)☐ Claim(s) _____ is/are objected to.
8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.
10)☒ The drawing(s) filed on <u>22 June 2006</u> is/are: a)☒ accepted or b)☐ objected to by the Examiner.
    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
    a)☐ All   b)☐ Some * c)☐ None of:
      1.☐ Certified copies of the priority documents have been received.
      2.☐ Certified copies of the priority documents have been received in Application No. _____.
      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date <u>6/22/2006</u>.

4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____ .

DETAILED ACTION

Response to Preliminary Amendment

1.   Applicant's Preliminary Amendments filed on June 22, 2006 have been entered.

Claims 1-22 have been canceled. Claims 23-44 have been added. Claims 23-44 are

pending in this application, with claims 23 and 33 being independent.

Claim Rejections - 35 USC § 112

2.   The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly
> claiming the subject matter which the applicant regards as his invention.

Claims 26, 29, 36 and 39 are rejected under 35 U.S.C. 112, second paragraph,

as being indefinite for failing to particularly point out and distinctly claim the subject

matter which applicant regards as the invention.

Claims 26 and 36 recite a limitation *"forecasting said first bandwidth in said first*

time interval from said measured bandwidth".

Claims 26 and 36 depend from claims 24 and 34, respectively. However, claims

24 and 34 also recite a limitation *"estimating a first bandwidth of said high priority traffic*

in a first predetermined time interval". It is not clear whether is there a difference

"estimating a first bandwidth" and *"forecasting said first bandwidth"*? Or, they are

simply redundant limitations.

Furthermore, it is not clear what is "*estimating a first bandwidth*" or "*forecasting*

said first bandwidth" meant in light of Applicant's Specification /disclosures (e.g. a least

mean square algorithm)?

Claims 29 and 39 depend from claims 28 and 38, respectively. Claims 29 and 39

are rejected for the same reason to claims 26 and 36 recited above.

Claim Rejections - 35 USC § 112

3.   The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly
> claiming the subject matter which the applicant regards as his invention.

Claims 34-41 are rejected under 35 U.S.C. 112, second paragraph, as being

indefinite for failing to particularly point out and distinctly claim the subject matter which

applicant regards as the invention.

Claim 34 recites "*The optical network according to claim 32, wherein said traffic*

controller is adapted to..." There is insufficient antecedent basis for this limitation in the

claim.

Claims 35-41 depend from claim 34, and thus are rejected based on the same

ground of rejection as to claim 34.

Claim Rejections - 35 USC § 102

4.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 23, 33 and 42-44 are rejected under 35 U.S.C. 102(e) as being

anticipated by US Patent No. 7,289,437 to Chiruvolu.

Regarding claim 23, Chiruvolu teaches a method of managing traffic in an optical

network **[Fig. 1]**, comprising:

tagging a first portion of traffic in ingress to at least one node of said network as

high priority traffic **[Fig. 1; col. 3, lines 45-55]** and a second portion of traffic in ingress

to said at least one node as low priority traffic **[Fig. 1; col. 3, lines 45-55]**;

configuring at least a portion of said network so that a first portion of switched

circuits exiting from said at least one node is adapted to carry said high priority traffic

[Figs. 1-3 & 4, steps 400-418; col. 3, lines 45-55, col. 5, lines 8-55] and a second

portion of switched circuits exiting from said at least one node is adapted to carry said

low priority traffic **[Figs. 1-3 & 5, steps 500-506; col. 3, lines 45-55, col. 5, line 61 –**

col. 6, line 14];

detecting a burst of said high priority traffic **[Fig. 4, step 400; col. 5, lines 8-13]**;

after said step of detecting said burst, acting on at least a portion of said low priority

traffic, so as to deplete at least one interface of said at least one node, connected to at

least one switched circuit of said second portion of switched circuits **[Fig. 4, steps 404-**

408; col. 5, lines 16-29];

tearing down at least one switched circuit connected to said at least one depleted

node interface **[Fig. 4, steps 404-406; Fig. 6, steps 616-620; col. 5, lines 16-29, col.**

7, lines 4-12];

setting up at least one new temporary switched circuit starting from said at least

one depleted node interface **[Fig. 4, steps 404-408; col. 5, lines 16-29]**; and

forwarding a portion of said high priority traffic to said at least one depleted node

interface, and, thereby, to said new temporary switched circuit **[Fig. 4, steps 404-408;**

col. 5, lines 16-29].

Regarding claim 33, Chiruvolu teaches an optical network **[Fig. 1]** comprising:

at least one node comprising a router **[Fig. 1; MPLS edge nodes 102a-102c;**

col. 3, lines 32-35] adapted to tag a first portion of traffic in ingress thereof as high

priority traffic **[Fig. 1; col. 3, lines 45-55]** and a second portion of traffic in ingress

thereof as low priority traffic **[Fig. 1; col. 3, lines 45-55]**;

at least one network controller **[Fig. 1; the control or resource management**

function of MPLS edge nodes 102a-102c; col. 3, lines 45-55; col. 4, lines 13-17,

col. 7, line 64 – col. 8, line 4] adapted to configure at least a portion of said network in

order to have a first portion of switched circuits exiting from said at least one node

adapted to carry said high priority traffic **[Figs. 1-3 & 4, steps 400-418; col. 3, lines 45-**

55, col. 5, lines 8-55] and a second portion of switched circuits exiting from said at

least one node adapted to carry said low priority traffic **[Figs. 1-3 & 5, steps 500-506;**

col. 3, lines 45-55, col. 5, line 61 – col. 6, line 14];

said network controller also comprising a traffic controller **[Figs. 1 & 6; the**

control or resource management function of MPLS edge nodes 102a-102c; col. 3,

lines 45-55; col. 4, lines 13-17, col. 6, lines 15-19] adapted to detect a burst of said

high priority traffic and to thereby send a first warning signal **[e.g. Fig. 6, steps 600-**

604; col. 6, lines 19-32, or, Fig. 4, step 400; col. 5, lines 8-13]];

said router also being adapted to act on at least a portion of said low priority

traffic in case of receipt of said first warning signal, so as to deplete at least one node

interface, connected to at least one switched circuit of said second portion of switched

circuits **[Fig. 4, steps 404-408; col. 5, lines 16-29, or. Fig. 5, steps 504-510; col. 6,**

lines 1-14];

said network controller also being adapted to tear down at least one switched

circuit connected to said depleted node interface, in case of receipt of said first warning

signal **[Fig. 4, steps 404-406; Fig. 6, steps 616-620; col. 5, lines 16-29, col. 7, lines**

4-12];

said network controller also being adapted to set up at least one new temporary

switched circuit starting from said at least one depleted node interface **[Fig. 4, steps**

404-408; col. 5, lines 16-29]; and

said router also being adapted to forward a portion of said high priority traffic to

said at least one depleted node Interface, and, thereby, to said new temporary switched

circuit **[Fig. 4, steps 404-408; col. 5, lines 16-29]**.

Regarding claim 42, Chiruvolu teaches the optical network, wherein said at least

one node comprises switching equipment **[Fig. 1; MPLS edge nodes 102a-102c; col.

3, lines 32-35]**.

Regarding claim 43, Chiruvolu teaches the optical network, wherein said

switching equipment comprises a digital cross connect, or an optical cross connect, or

an add/drop multiplexer, or a fiber switch **[Fig. 1; optical cross-connects 104a-104c;

col. 3, lines 32-35]**.

Regarding claim 44, Chiruvolu teaches the optical network comprising optical

fibers connected to said switching equipment **[Fig. 1; fiber links; col. 3, lines 32-35,

col. 4, lines 49-54]**.

Claim Rejections - 35 USC § 103

5.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

Claims 24-32 and 34-41 are rejected under 35 U.S.C. 103(a) as being

unpatentable over US Patent No. 7,289,437 to Chiruvolu in view of US Patent

Application Pub. No. 2002/0176389 A1 by Porikli et al. (hereinafter "Porikli")

Regarding claims 24 and 34, Chiruvolu teaches each limitation set forth in their

respective parent claims. Chiruvolu further teaches comparing a first bandwidth with a

first predetermined threshold **[e.g. Fig. 4, step 400; determining sufficient capacity**

on existing direct LC for a HP request; col. 5, lines 9-13, or, Fig. 6, step 600;

comparing the utilization with an upper or lower threshold, i.e. 80% or 20%; col. 6,

lines 22-24, col. 7, lines 33-35].

However, Chiruvolu does not expressly teach estimating a first bandwidth of said

high priority traffic in a first predetermined time.

Porikli teaches a method/system which dynamically allocates and renegotiate

bandwidth to traffic having a variable data rate in the network **[Abstract]**. Porikli

teaches estimating a first bandwidth of said high priority traffic in a first predetermined

time interval **[Fig. 6; determine an optimum bandwidth allocation a(n+1) for real-**

time traffic at a future time n+1 given a current traffic bit arrival rate r(n), and

current allocated bandwidth a(n) at time n using Least Mean Square Prediction

Module 612; para. 0008, 0030-0031, 0047-0048].

It would have been obvious to a person of ordinary skill in the art at the time of

the invention was made to implement a well-known adaptive predicative scheme, such

as a Least Mean Square (LMS) algorithm, not only for monitoring the current high priority traffic but also predicating the high priority traffic in the future time interval in Chiruvolu's GMPLS network.

The motivation for combining the reference teachings would be to enable Chiruvolu's system to predict, configure and thus adapt to the changing traffic demands for optimal resource utilization so that the objective of dynamically establishing and tearing down optical channels in GMPLS optical networks can be achieved.

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Regarding claims 25 and 35, Chiruvolu, in view of Porikli, teaches said step of acting on at least a portion of low priority traffic is carried out if said first bandwidth exceeds said first predetermined threshold **[Chiruvolu: Fig. 4, steps 404-408; col. 5, lines 16-29, or, Fig. 6, steps 602-604; col. 6, lines 25-32]**.

Regarding claims 27 and 37, Chiruvolu, in view of Porikli, teaches detecting an end of a burst of said high priority traffic **[Chiruvolu:Fig. 6, step 606 or 610; low threshold; col. 6, lines 37-58]** and thereby sending a second warning signal **[Chiruvolu:Fig. 6, steps 608-609; col. 6, lines 40-54]**.

Regarding claims 28 and 38, see rejection to claim 24 and Fig. 6 of Porikli for repeatedly executing the LMS prediction algorithm when a subsequent HP request is received **[Porikli: para. 0008, 0030-0031, 0047-0048]**

Regarding claims 30 and 40, Chiruvolu, in view of Porikli, teaches said first threshold is higher than or equal to said second threshold **[Chiruvolu:Fig. 6; e.g. 80% and 205; col. 7, lines 33-35]**.

Regarding claims 31 and 41, Chiruvolu, in view of Porikli, teaches after said step of detecting said end of burst, acting on said forwarded portion of said high priority traffic so as to route said forwarded portion toward at least one switched circuit of said first portion of switched circuits **[Chiruvolu: Fig. 6, steps 608-609; i.e. unset the flag and update the Preferred Hop table entries so as to route the traffic based on the updated table entries; col. 6, lines 40-54]**;

tearing down said at least one new temporary switched circuit **[Chiruvolu: Fig. 4, steps 404-406; Fig. 6, steps 616-620; col. 5, lines 16-29, col. 7, lines 4-12]**; and

restoring said at least one torn down switched circuit of said second portion of switched circuits **[Chiruvolu: Fig. 4, step 412; create a new direct LC; col. 5, lines 41-46]**.

Regarding claim 32, Chiruvolu, in view of Porikli, teaches said step of acting on said forwarded portion of said high priority traffic is carried out if said second predetermined threshold exceeds said second bandwidth **[Chiruvolu: Fig. 6, step 606; e.g. the utilization exceeds the lower threshold but lower than the upper threshold; col. 6, lines 40-54]**.

6.   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Albert T. Chou whose telephone number is 571-272-

6045. The examiner can normally be reached on 8:30 - 17:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Chi H. Pham, can be reached on 571-272-3179. The fax phone number for

the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free).

/Albert T Chou/
Examiner, Art Unit 2416
January 14, 2009